

## Claims:

1. A moving imager camera comprising:
  - 5 a first positioning mechanism capable of three-dimensional movement;
  - 10 a first imaging device having an imaging surface, the first imaging device being mounted upon a surface of the first positioning mechanism such that the first imaging device moves in concert with motion of the surface of the first positioning mechanism;
  - 15 a first measurement system operable to determine a position of the first imaging device within an external frame of reference defined by three axes X, Y, and Z; and
  - 20 a first lens having a focal surface and a field of coverage, the first lens arranged such that the focal surface coincides with the imaging surface of the first imaging device, the field of coverage of the first lens being larger than the optically sensitive area of the imaging surface.
  - 25 a second positioning mechanism capable of three-dimensional movement;
  - 30 a second imaging device having an imaging surface, the second imaging device being mounted upon a surface of the second positioning mechanism such that the second imaging device moves in concert with motion of the surface of the second positioning mechanism;

a second measurement system operable to determine a position of the second imaging device in the focal plane; and

a second lens having a focal surface and a field of coverage, the second lens arranged such that the focal surface of the second lens coincides with the imaging surface of the second imaging device, the field of coverage of the second lens being larger than the optically sensitive area of the imaging surface.

2. A moving imager camera as recited in claim 1 further  
10 including a control system operable to control motion of the first and  
second positioning mechanisms.

3. A moving imager camera as recited in claim 2 wherein  
the control system includes a first controller arranged to control the  
15 first positioning mechanism and a second controller arranged to  
control the second positioning mechanism.

4. A moving imager camera as recited in claim 1 further comprising an alignment mechanism operable to align the first and 20 second imaging devices into substantially the same plane.

5. A moving imager camera as recited in claim 1 wherein the alignment mechanism includes a laser diode disposed within the first positioning mechanism and aimed at a mirror disposed within the second positioning mechanism, and a light sensor disposed within the

first positioning mechanism, such that when the first and second positioning mechanisms are aligned into substantially the same plane, a beam of light generated by the laser diode will reflect off the mirror and return for measurement and optimization at the light sensor.